GUEST EDITORIAL

Stratigraphy and the International Commission

The most reliable systems of stratigraphy deal with global process which are universal, unidirectional in the sense of irreversible - time sequence can only be read one way - and non-recurrent and non-repeatable. Included here, most significantly, is the evidence from biological evolution (sequential) and nuclear decay (metric). Biological evolution interacts through geological time with other factors, but is the main indicator of the direction of the arrow of time, of prime polarity. The evidence available so far shows that it cannot be stopped and reset. Nuclear decay also has this polarity, but unlike biological evolution it can be stopped and reset, and it has the great virtue of numeracy. Geochronometry has particular attraction for geoscientists working in unfossiliferous or sparsely fossiliferous rocks, but biostratigraphy gives the most useful and, at the present stage of research, generally the most accurate framework.

Today, stratigraphy is a subject in a dynamic phase of development with diverse emphases on aspects like unique or recurrent cyclic events (event stratigraphy), such as ash falls, eustatic changes, glacial deposits, appearance or disappearance of a particular biota, and evidence of impacts of extraterrestrial bodies. If these events can be shown to have global and isochronous effects, so that they are not merely parochial and diachronous masquerades, then they can be uniquely valuable in elucidating earth history. Cyclicality is still being sought in the modern search for the 'pulse of the earth'. Adjectives attached to stratigraphy proliferate, indicating renewed interest and involvement with stratigraphy as the keystone of the geological sciences - ecostratigraphy, seismic stratigraphy, chemostratigraphy, event stratigraphy, biostratigraphy, magnetostratigraphy, and others.

The eight years covering the intervals between the 25th International Geological Congress (IGC) in Sydney (1976), the 26th in Paris (1980), and the 27th in Moscow (1984) saw much progress in the work of the International Commission on Stratigraphy (ICS) under the auspices of IUGS. The Commission suffered a grievous loss with the early death in 1983 of its Chairman, Anders Martinsson (Sweden; see *Episodes* 1983, No. 3), but his Secretary-General, Michael G. Bassett (U.K.), assumed the work-load of both offices, with the assistance of Vice-Chairmen Martin F. Glaessner (Australia) and Sergei V. Meyen (U.S.S.R.), and past-Chairman Digby J. McLaren (Canada). Bassett was faced with the particularly arduous task of organizing ICS activities at the Moscow Congress and the submission and ratification of global stratotype candidates.

On behalf of ICS, Dr. Bassett has also been responsible for soliciting and editing the articles summarizing the results for this issue of *Episodes*. By decision of the ICS meeting in Moscow last year, the previous (1980-84) Chairmen of the ICS Subcommissions and the new and old officers of the ICS Bureau all took part in the required postal ballots to vote on the proposals presented here. The new Bureau for 1984-1989 expresses its gratitude to Michael Bassett for bringing to fruition the work of ICS from 1976 to 1984 begun by Martinsson; to them belong in the main the credit and the responsibility for this work.

A great mass of scientific data, ideas and theories has now been put forward formally and informally in printed publications, newsletters and circulars by Commission bodies, and

the production of common, agreed stratigraphical standards is evident and will escalate. Fundamental work in the geological sciences transgresses national boundaries, and agreements on an international basis are particularly valuable. However, in some cases disagreements can be a seminal factor and can accelerate progress. The coordinating and integrating function of the Commission itself, (through its Secretariat/Bureau) may become even more desirable if used with discretion; plans are now aimed at developing this further in the next four years. Increased understanding of useful stratigraphical definition and subdivision on an agreed international basis and improved refinement and resolution in global correlation are the main threads running through this work, and the impetus continues to be maintained under the leadership of IUGS.

A recently completed example of the fruits of international cooperation and enterprise generated by ICS arose from meetings of the Subcommission on Cambrian Stratigraphy, the Precambrian-Cambrian Boundary Working Group and the 2nd International Symposium on the Cambrian System (1981, Golden, Colorado). As a result, three key Soviet monographs on Cambrian stratigraphy have now been published in English through the joint U.S. Department of the Interior and National Science Foundation translation program, and complimentary copies of all three books can be requested through ICS by appropriate research scientists. This is only one example of seminal activities around the world that cross international frontiers.

The steadily increasing value of *Episodes* as a vehicle for disseminating views and results is one factor that has benefited stratigraphical communication. Another will be an "IUGS Standard Stratigraphic Scale" to be published by the Commission in this decade. It is hoped that this will provide an authoritative visual standard to assist and stimulate teaching and research.

Many workers are now looking to the ICS Bureau for guidelines in formulating their decisions and recommendations and in preparing submissions for approval by ICS and ultimately by IUGS. The International Stratigraphic Guide prepared and published in 1976 by the Subcommission on Stratigraphic Classification was never adopted by the Commission and is now in the process of being revised. Guidelines are now being prepared by the ICS Bureau and will be circulated shortly.

Future submissions of stratotypes and other decisions of Subcommissions, Working Groups and Committees will be subject to a deadline of August 1988, one year before the next International Geological Congress in Washington. This will enable processing, amendment and revision to be completed in good time before the plenary ICS meeting in August 1989, to be followed later that year by a postal ballot of voting members of ICS (1984-89 Chairmen of Subcommissions plus new and old ICS Bureau of officers) before onward transmission to the IUGS Executive.

The rest of this decade and the 1990s promise to be a productive period for geoscience. Stratigraphy in all its manifold and fundamentally important aspects will be much involved and will make its vital contribution.

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